

Nortel Networks Invention Disclosure

Tracking No: _____

Date: September 26, 2000

Title: Method For Distributing VPN Routes Locally And Remotely.

Nortel Networks Product:
OPTera Packet Core, V25k

Inventor(s):
Richard Crump, Janet Doong

Description:

The present invention is a VPN Route Distributor and Database which provides a control layer between routing protocols and multiple routing tables, as shown in Figure One. The VPN Database is built from reading the system's configuration MIBs. It relates which routing tables (VRFs) and interfaces are associated with each VPN. A routing table may be associated with more than one VPN. In order to propagate VPN routes to the proper set of routing tables, VPN Route Distributor is designed to have intelligence to know if a routing table operation needs to be duplicated on other routing tables or not. If an operation needs to be duplicated it will be able to know on which other routing tables to apply it. So all the VPN routes are able to propagate locally and remotely without the routing protocol themselves having VPN membership intelligent.

Remote route distribution. When a route received from core network via MBGP, the VPN Route Distributor will determine if the route was learnt from a VPN network or a classical IP network. If it is learnt from a classical IP network then it will be submitted to the Global Routing Table, VRF-0. Otherwise, VPN Route Distributor will submit the route to the VRFs associated with the route's VPN target list. For example, when MBGP submit its VPN routes to the VPN Route Distributor, it will look up in its VPN Database to find all VRFs having intersecting VPN membership with the route's VPN target list. VPN Route Distributor will then submit the routes to those VRFs. See the example on Figure Two.

Local route distribution. When a route received from custom network via BGP, OSPF or RIP2, the VPN Route Distributor will determine if the route was learnt from a VPN network or a classical IP network. If it was learnt from a classical IP network, it will be submitted to the Global Routing Table, VRF-0. Otherwise, the VPN Route Distributor will find the VPN membership associated with this route and which VRFs have intersecting memberships by a look up in the VPN Database. VPN Route Distributor will then submit the route to those VRFs. See the example on Figure Three.

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Unique/Patentable Features:

Method to propagate VPN routes locally and remotely without the routing protocols themselves having VPN membership intelligent.

Prior Art:

Not Available

Use in Standards/Other Planned Disclosures:

none.

Attachments:

Figure One: Route Distributor Relationship Diagram.

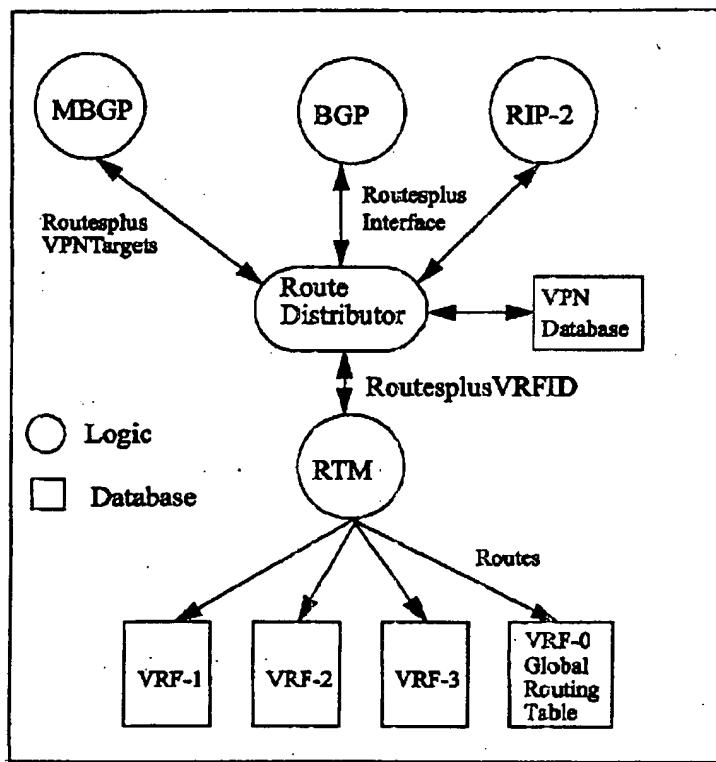
Figure Two: VPN and Global Route Distribution Flow Diagram.

Figure Three: VPN Route Local Distribution Flow Diagram.

References:

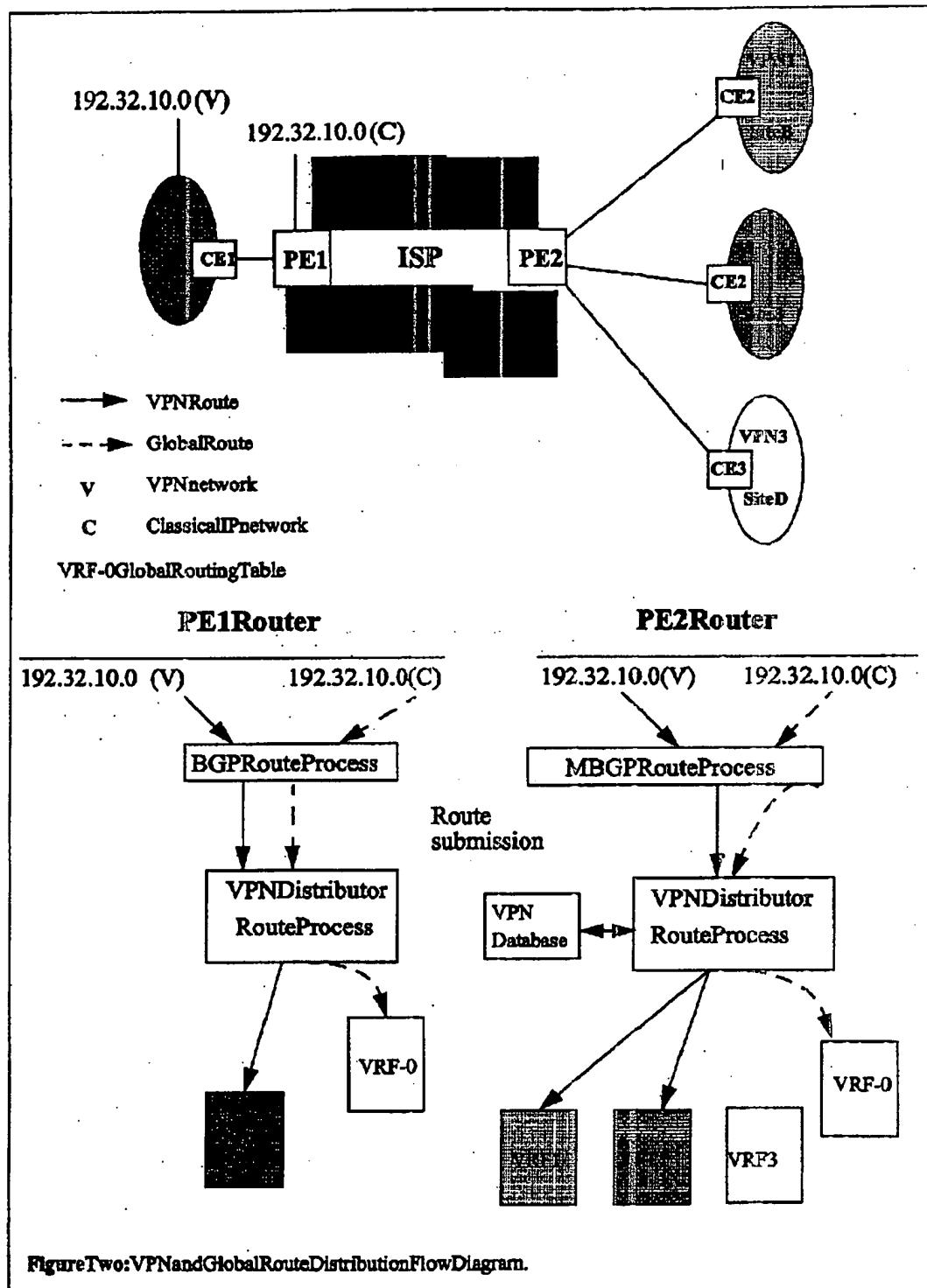
- [Ref.1] MPLSVPN Functional Specification, VPN Manager section, Richard Crump and Janet Doong.
- [Ref.2] draft-rosen-rfc2547bis-01.txt, Eric Rosen et al.

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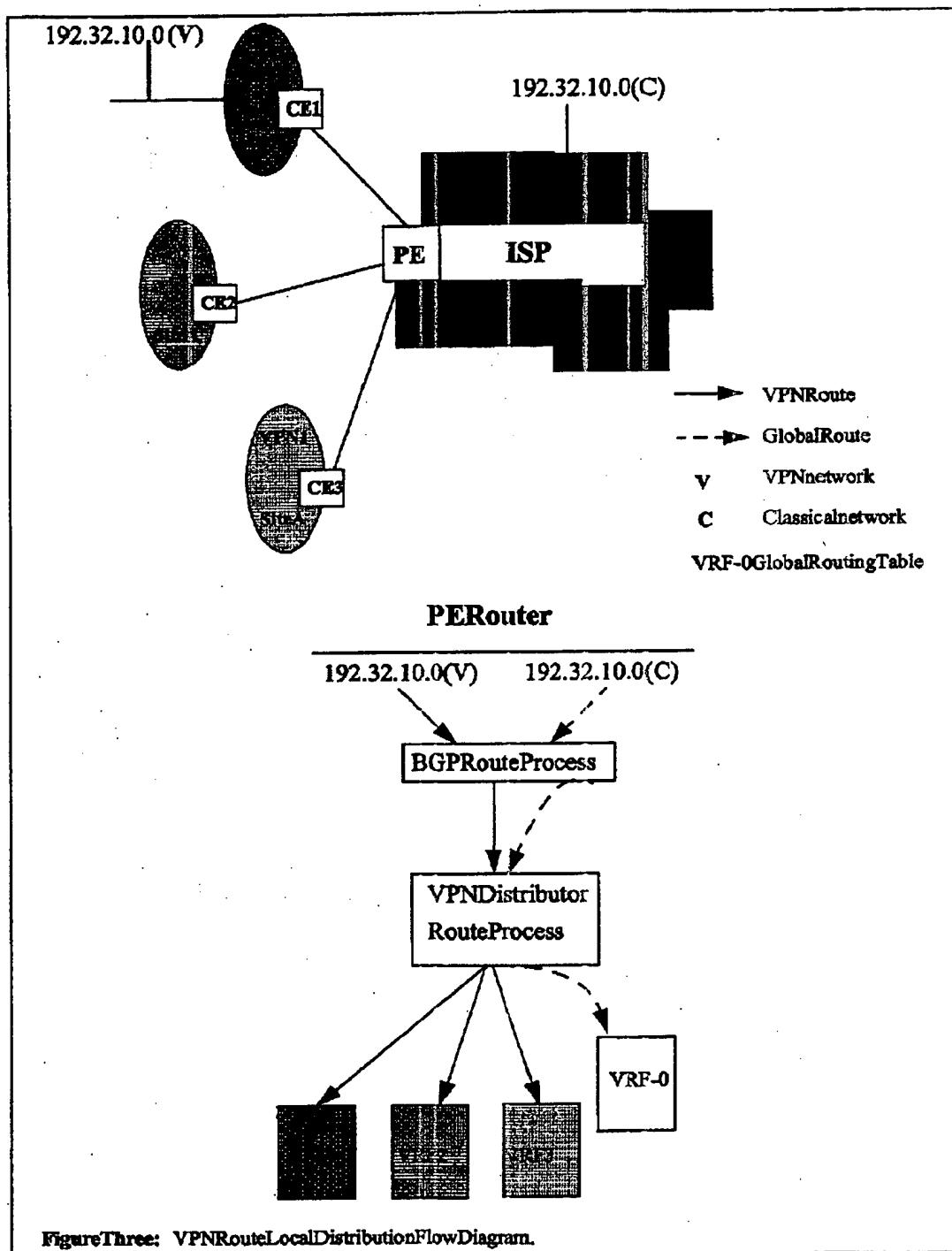
FigureOne: RouteDistributorRelationshipDiagram.

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FigureThree: VPNRouteLocalDistributionFlowDiagram.

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